

In re Patent Application of:

ROSSIN ET AL.

Serial No. **09/518, 421**

Filed: **MARCH 03, 2000**

REMARKS

Claims 1 to 33 are currently pending.

Claims 1, 10 to 15, 17, 32 and 33 have been rejected under the provisions 35 U.S.C. § 103(a) as being unpatentable over United States Patents No. 6,229,947 (Vawter et al). Claims 1 to 9 and 16 to 31 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Vawter et al in view of United States Patents Nos. 6,058,128 (Ventrudo) and 6,094,515 (Miki et al).

The claims of the application have been amended to further clarify that the optical waveguide tapers from the second end to the first end or, in other words, that the input end is the narrow end, the output end is the wide end, and the middle section **expands from the input end to the output end.** With reference to Figure 2A, see Page 7, lines 7 to 9: "The waveguide 202 has a relatively narrow region 208 extending from the first end 204, and a relatively wide region 210 extending from the output end 206." As originally stated in claim 1: "an output is emitted from the second end of the optical waveguide", and "a second portion of a second width, less than five microns, wider than said first width".

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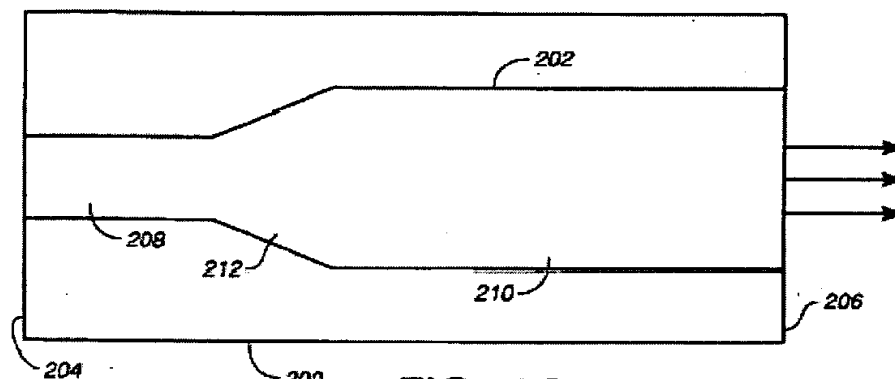


FIG. 2A

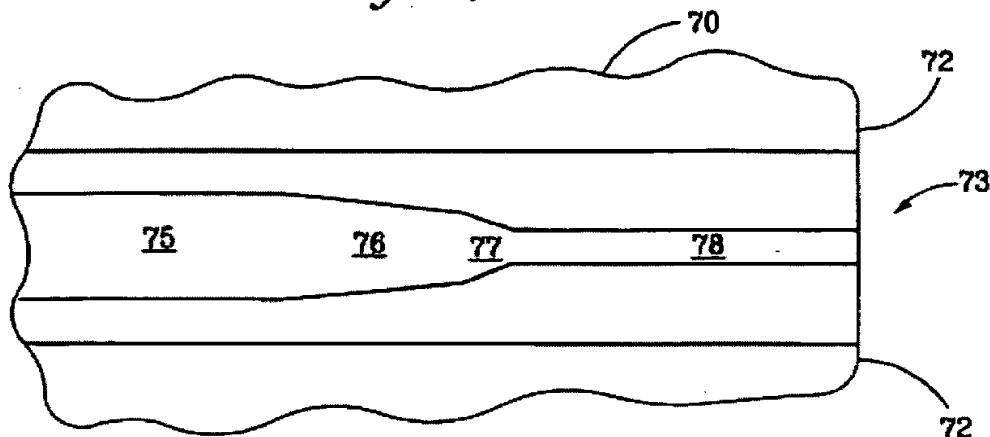
The purpose of the present invention is to permit a relatively low loss transformation of the fundamental mode from the narrow region to the wide region (Page 7, lines 11 to 13), particularly at high power applications, to eliminate a "kink" in the output power vs current curve. Reduction in waveguide width reduces the available output power; however, if the waveguide is not sufficiently narrow as to discriminate against higher order modes, then the output may include one or more higher order lateral modes. Therefore, a limited expansion from the narrow input section to the wider output section via a gradually expanding middle region is a novel and non-obvious feature of the present invention.

The tapered rib fiber coupler disclosed in the Vawter et al reference tapers from the input end to the output end. See col 6 lines "The rib has a non-linear taper between its wide section 75 and its narrow section 78...". In Figure 17A, the output face 73 is clearly identified next to the narrow section 78. The purpose of the device in the Vawter et al patent is to match the optical mode of the laser with that of an output fiber; while the device of the present invention is concerned with controlling oscillation of the first-order lateral modes for kink-free operation.

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FIG. 17A



As such, it is respectfully submitted that all of the claims remaining in the application are in condition for allowance. Early and favorable consideration would be appreciated.

Should any minor informalities need to be addressed, the Examiner is encouraged to contact the undersigned attorney at the telephone number listed below.

Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees, to Deposit Account No. 50-1465 and please credit any excess fees to such deposit account.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Charles E. Wands".

CHARLES E. WANDS

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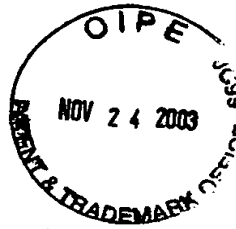
PATENT TRADEMARK OFFICE

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CERTIFICATE OF MAILING

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Kristen Ferguson

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